

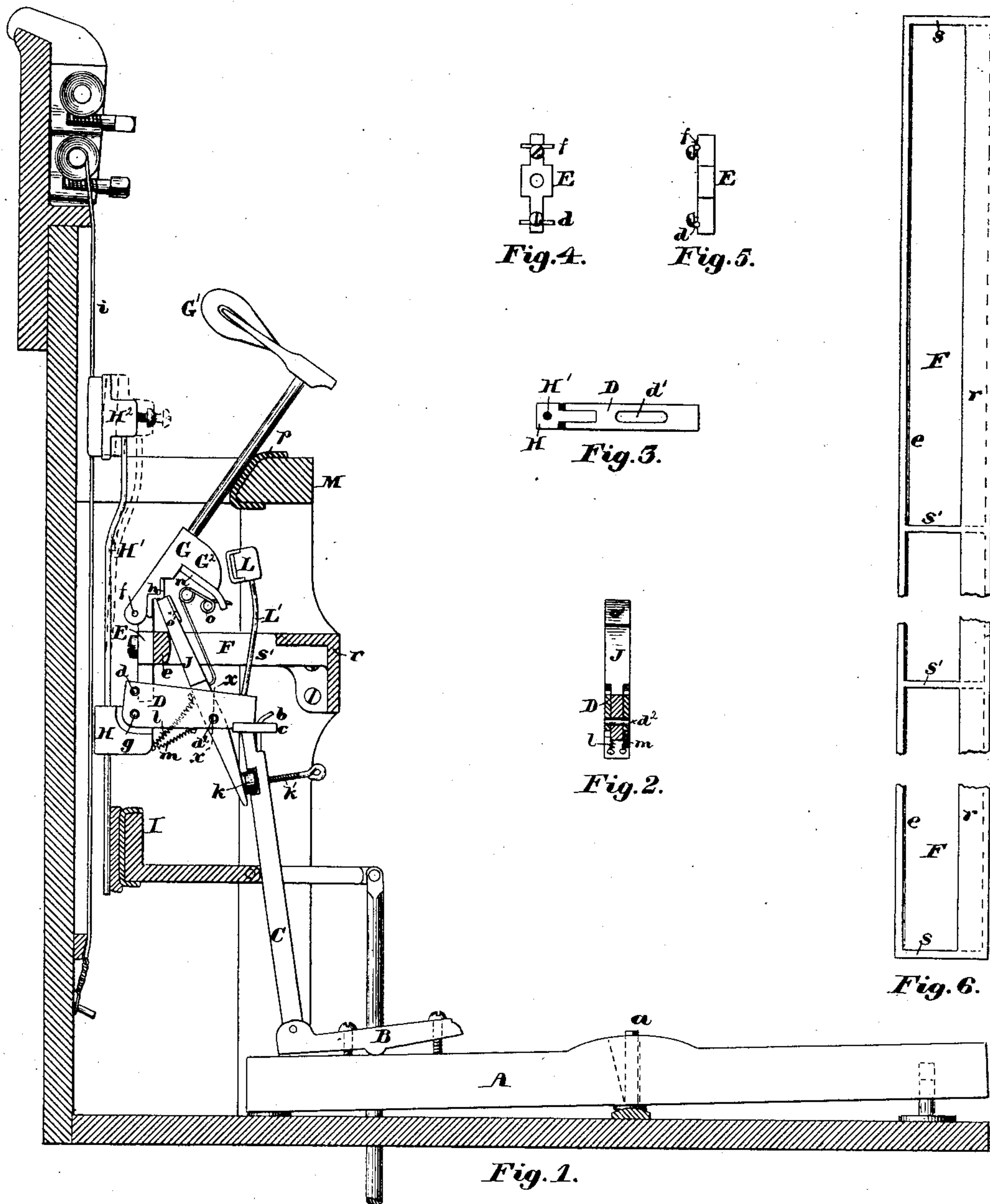
(No Model.)

C. E. ROGERS.

PIANO ACTION.

No. 326,335.

Patented Sept. 15, 1885.



Witnesses:

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UNITED STATES PATENT OFFICE.

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PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 326,335, dated September 15, 1885.

Application filed May 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. ROGERS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Piano-Actions, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to piano actions, and especially to actions for upright pianos; and it consists in certain novel constructions, arrangements, and combinations of parts, which will be readily understood by reference to description of the drawings, and to the claims to be hereinafter given.

Figure 1 of the drawings represents a transverse section through the action-rails of an upright piano, and showing one key and the action connected therewith in elevation. Fig. 2 is a vertical section through the fly and its lever on line *xx* on Fig. 1, and showing the upper portion of the fly in elevation. Fig. 3 is a plan of the fly-carrying lever and damper fulcrum-block. Figs. 4 and 5 are rear and side elevations, respectively, of the action-carrying flange, and Fig. 6 is a plan of the flange-rail.

A is the key fulcrumed at *a*, and having secured to the upper side of its inner end the rocker-lever B, to the rear end of which is pivoted the lower end of the jack C, the upper end of which supports and acts upon the front end of the fly-carrying lever D, to which it is connected by the pin *b*, which passes through the projecting portion of the felt-pad *c*, secured to the under side of said fly-carrier D, and against which the upper end of the jack C bears, as shown in Fig. 1.

The rear end of the fly-carrying lever D is pivoted at *d* to the flange E, which in turn is secured by its middle to the rear bar, *e*, of the flange-rail F, and projects upward therefrom, and has pivoted thereto at *f* the hammer-butt G, as shown.

The lever D also has pivoted to its rear end at *g* the block H, in which is firmly secured the damper-rod H', carrying at its upper end the damper H², and projecting below said block H into a position to be acted upon by the pedal-operated cam-rail I, for the purpose of removing the dampers from the strings, as indicated in dotted lines in Fig. 1.

The hammer-butt G has formed thereon the felted and leathered shoulder *h*, against which the upper end of the fly-lever J acts to throw the hammer G' against the string *i*. The fly-lever J passes through the slot *d'*, formed in the lever D, and is pivoted to said lever at *d*² with its lower end extending below said lever D and into contact with the felted button *k*, adjustably secured to the jack C by the screw *k'*, said fly-lever being maintained in the desired oblique position with its upper end in engagement with the shoulder *h* by means of the spring *l*, connected at one end to the block H, and at the other end to said fly-lever above its fulcrum, as shown in Fig. 1. The lever D is also connected to the block H by means of the spring *m*, for the purpose of maintaining contact of the front end of said lever with the upper end of the jack C.

The hammer-butt G is provided at its upper end with the forward projection G², having its upper front corner rounded, as shown, and having secured to its under side the felt or leather pad *n*, which projects beyond the hammer-butt, and has inserted therein one end of the spring *o*, the other end of which is inserted in the front side of the fly-lever J, as shown.

To the upper portion of the front side of the fly-lever J is secured a piece of felt or leather, *o'*, to prevent contact of the spring *o* with the wood of said lever.

L is a hammer-check mounted upon the stem L', set in the forward end of the lever D, said check being arranged to catch the hammer-butt when the hammer rebounds after having struck the blow upon the string by pressing upon the rounded upper surface of the projection G' of said butt.

M is the hammer-rest rail provided with the felt-cushion *p* to receive the hammer-handle after the finger is removed from the key in a well-known manner.

It will be observed that the flanges are attached by their middle to the flange-rail F and project above and below said rail and carry at one end the hammer-butt and at the other end the fly-carrying lever and the damper fulcrum-block.

The flange-rail F consists of a front bar, *r*, and the rear bar, *e*, arranged parallel to each other and extending from side to side of the

piano-case, and connected together by the end ties, *s s*, and one or more intermediate ties, *s' s'*, and the whole made in one piece, preferably of cast-iron, the spaces between the front and rear bars being occupied by the flies and hammer-check rods, as shown in Fig 1.

Another novel feature of my invention is the manner in which the hammer-butt *G* and fly-carrying lever *D* are pivoted to the flange *E*, which is as follows: The flange *E*, instead of having a hole or holes drilled through it to receive the fulcrum-pins *f* and *d*, as is usual, has formed in one side thereof, and near one or both ends, a transverse groove, *f'*, to receive said pin or pins, which are firmly secured therein by the screws *d'*, the heads of which bear hard upon said pins to clamp them in position.

A great advantage is obtained by this arrangement, inasmuch as when it is desired, for any purpose, to remove the hammer-butt *G* or lever *D* the fulcrum-pins *f* and *d* do not have to be removed therefrom, but it is only necessary to slacken the screw *d'* to remove it, and to secure it again the butt or lever is placed in position with its fulcrum-pin resting in the groove *f'* in the side of the flange, and the screw *D* is screwed up till its head bears hard upon the pin, as shown in Figs. 4 and 5.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The metallic flange-rail *F*, composed of the bars *r* and *e*, the end ties, *s s*, and one or more intermediate ties, *s' s'*, all arranged substantially as and for the purposes described.

2. In combination with the rail *F*, provided with the bars *r* and *e*, the flange *E*, secured to and projecting above and below the bar *r*, the hammer-butt *G*, pivoted to the upper end of said flange, the lever *D*, pivoted to the lower end of said flange and provided with the slot *d'*, the "fly" *J*, pivoted to the lever *D* and ar-

ranged to engage with and lift the hammer-butt *G*, the jack *C*, and the key *A*, all arranged and adapted to operate substantially as described.

3. The lever *D*, provided with the projecting felt pad *c*, in combination with the jack *C*, provided with the pin *b*, extending above the upper end of said jack and through said felt, substantially as described.

4. The combination of the flange *E*, the lever *D*, pivoted thereto, the damper-block *H*, pivoted to the lever *D*, and the spring *m*, all arranged and adapted to operate substantially as described.

5. The hammer-butt *G*, provided with the flexible projecting pad *n*, in combination with the fly *J*, and the spring *o*, all arranged and adapted to operate substantially as described.

6. The combination of the lever *D*, flange *E*, hammer-butt *G*, provided with the projection *G'*, the check *L*, and the springs *l* and *o*, substantially as described.

7. In combination with the damper-rod *H'*, projecting above and below the fulcrum-block *H* and carrying at its upper end the damper *H'*, the pedal-operated rocking rail *I*, constructed, arranged, and adapted to operate substantially as and for the purposes described.

8. The flange *E*, provided with one or more transverse grooves, *f'*, and one or more clamping screws, *d'*, in combination with the fulcrum pin or pins of a pivoted part of the action, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 1st day of May, A. D. 1884.

CHAS. E. ROGERS.

Witnesses:

N. C. LOMBARD,
WALTER E. LOMBARD.